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CERTIFICATE

IN THE MATTER OF
French application No. 99 00521
and IN THE MATTER OF
a Patent Application in UNITED STATES OF
AMERICA

I, LAGRANGE Jacques, of Cabinet LAVOIX, 2, place d'Estienne d'Orves –
75009 PARIS (France), do hereby declare that I am conversant with the
English and French languages and I am a competent translator thereof and
That, to the best of my knowledge and belief, the following is a true and correct
Translation into the English language of the French Application
No. 99 00521 of January 19, 1999

Signed this March 30, 2005.


Jacques LAGRANGE

09/889,616

ER 99/00521
(:/889,626)

INPI

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P A T E N T

UTILITY CERTIFICATE - CERTIFICATE OF ADDITION

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The Director-General of the Institut National de la Propriété Industrielle certifies that the attached document is a true copy of an application for industrial property titleright filed at the Institute.

Drawn up in Paris, 11 JUL. 2001

On behalf of the Director-General of the
Institut National de la Propriété Industrielle
The Patent Department Head

(signature)

Martine PLANCHE

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No. 55-1328

REQUEST FOR GRANT

26 bis, rue de Saint Pétersbourg
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Confirmation of filing by fax ☐

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Reserved for the INPI		1. NAME AND ADDRESS OF THE APPLICANT OR THE REPRESENTATIVE TO WHOM THE CORRESPONDENCE IS TO BE ADDRESSED	
DATE OF SUBMISSION OF THE DOCUMENTS 19. JAN. 1999		CABINET LAVOIX 2 Place d'Estienne d'Orves 75441 PARIS CEDEX 09	
NATIONAL REGISTRATION 99/00,521			
DEPARTMENT OF FILING 75		No. of permanent power of attorney	
DATE OF FILING 19 JAN. 1999		Correspondent's references BFF 98/0508	
Telephone 01 53 04 53 04 Telefax 01 42 93 59 30		Telephone 53-20-14-20	
2. APPLICATION			
<input checked="" type="checkbox"/> patent <input type="checkbox"/> divisional application			
<input type="checkbox"/> utility certificate <input type="checkbox"/> conversion of a European patent application <input type="checkbox"/> patent			
→ initial application			
Compilation of the search report		<input type="checkbox"/> deferred <input checked="" type="checkbox"/> immediate	
The applicant, as a physical person, asks to pay the fee by instalments		<input type="checkbox"/> yes <input type="checkbox"/> no	
Title of the invention (maximum 200 characters)			
PROCESS FOR THE TREATMENT OF A THIN BRITTLE METAL STRIP AND MAGNETIC COMPONENTS PRODUCED FROM A STRIP MADE OF A NANOCRYSTALLINE ALLOY.			
3. APPLICANT(S)		SIREN No.	
Name and forenames (underline the surname) or company name		APE-NAF code	
IMPHY UGINE PRECISION			
Nationality/Nationalities French		Legal form	
Full address(es)		Country	
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If insufficient space, continue on plain paper <input type="checkbox"/>			
4. INVENTOR(S) The inventors are the applicants <input type="checkbox"/> yes <input checked="" type="checkbox"/> no If the answer is no, provide a separate designation			
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6. PRIORITY DECLARATION OR APPLICATION FOR THE BENEFIT OF THE FILING DATE OF A PRIOR APPLICATION			
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7. DIVISIONS previous to the present application		No. date	
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8. SIGNATURE OF THE APPLICANT OR REPRESENTATIVE (name and capacity of the signatory - registration No.)		SIGNATURE OF THE RECEIVING OFFICIAL	
CABINET LAVOIX M. MONCHENY No 92.1179 (signature)		(illegible signature)	

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PATENT, UTILITY CERTIFICATE

DESIGNATION OF THE INVENTOR

(if the applicant is not the inventor or the sole inventor)

PATENTS ADMINISTRATIVE DIVISION

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NATIONAL REGISTRATION NO.

99/00,521

TITLE OF THE INVENTION:

PROCESS FOR THE TREATMENT OF A THIN BRITTLE METAL
STRIP AND MAGNETIC COMPONENTS PRODUCED FROM A STRIP MADE OF A
NANOCRYSTALLINE ALLOY.

THE UNDERSIGNED

IMPHY UGINE PRECISION

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NOTE: In exceptional cases, the name of the inventor may be followed by that of the company to which he belongs (membership company) when the latter is other than the company which is the applicant or proprietor.

Date and signature(s) of the applicant(s) or of the representative

Paris, 19 February 1999

CABINET LAVOIX
M. MONCHENY No 92.1179
(signature)

DOCUMENT CONTAINING AMENDMENTS

(FRENCH) PAGE(S) OF THE DESCRIPTION OR OF THE CLAIMS OR SHEET(S) OF DRAWINGS			R.M.*	DATE OF THE CORRESPONDENCE	DATE STAMP OF THE CORRECTOR
Amended	Omitted	Added			
p 22 to 27			X	12.05.00	E M 20 SEP. 2000

* A change made in the wording of the original claims, unless the change derives from the provisions of Article R.612-36 of the Intellectual Property Code, is indicated by the reference "R.M." (amended claims).

- 1 -

The invention relates to a process for the treatment of a thin brittle metal strip and products obtained from the treatment of the strip, which may comprise forming operations such as a cutting operation. In particular, it relates to a process for obtaining components for magnetic use by cutting them from a metal strip having a nanocrystalline structure.

It has been proposed to manufacture thin strip of a magnetic alloy, and in particular an alloy having a high permeability, which has a structure mainly consisting of very fine grains in an amorphous matrix, the size of which grains may, for example, be between 1 and 100 nm. Such alloys are called nanocrystalline alloys.

Nanocrystalline metallic materials are obtained, in the form of thin strip, for example having a thickness of around 20 μm , from amorphous strip or ribbon produced by casting and rapidly cooling a liquid metal on a cooled roll or between two cooled rolls. The amorphous strip or ribbon is heat treated by holding it at a temperature of around 550°C for a time of around one hour so that it develops a nanocrystalline structure within a substantial part, for example more than 50%, of its volume.

This heat treatment may be preceded by prior heat treatments at lower temperatures, for example of around 200°C.

When magnetically soft iron-based alloys are cast, cooled and then heat treated, it is possible to obtain, from the strip in the nanocrystalline state, products such as magnetic circuit cores exhibiting excellent magnetic properties which cannot be generally obtained in the case of materials whose structure is different from a nanocrystalline structure.

However, a drawback of strip or ribbon having a nanocrystalline structure is that such strip or ribbon is very brittle so that the slightest mechanical stress results in the strip or ribbon fracturing. It is not